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# MCZ newsletter

MUSEUM OF COMPARATIVE ZOOLOGY

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## Travel Program

*(For more information about any of the departures mentioned, please call the Friends of the MCZ office at 617-495-2463)*

### Report from Antarctica

The first MCZ sponsored Friends' trip to the Antarctic Peninsula in January proved so successful that a second trip, this time including Falkland and Elephant Islands, will be offered next January 9–25. MCZ Director James J. McCarthy, scientific guide for both trips, reports:

The twelve-day expedition aboard Society Expedition's M/S *Society Explorer* began in Puerto Williams, Chile, included about twenty wet landings on the Antarctic Peninsula and neighboring islands, and terminated in Punta Arenas, Chile. The weather was kind to our travelers and their days were filled with exciting discoveries at every turn. On the second day calm seas permitted them to land and climb to the top of Cape Horn with sightings of 30 bird species including the Magellanic Penguin and, incredibly, the Andean Condor. This initial landing set the tone for an adventurous expedition. The crossing of the Drake Passage permitted the first sightings of the majestic Antarctic icebergs, whales, and more than two dozen species of albatrosses, petrels, fulmars, and skuas.

One million Adelie Penguins greeted the MCZ Friends at their first Antarctic landing at Hope Bay, Paulet Island. Adult birds stood watch over their chicks, while their mates swam the adjacent seas in search of krill to feed the young. It was possible, as extraordinary as it seems, to move relatively unnoticed among these birds and to observe the entire spectrum of their brooding behavior.

Subsequent landings presented equally intimate experiences with chinstrap and gentoo penguins, and numerous seals. At some point in the journey most photographers vowed not to take another photo of a penguin, but then managed to justify between a hundred and a thousand exceptions. Equally photogenic was the spectacular relief of the rugged terrain on both the mainland and the islands. The cruise through the Lemaire Channel was truly breathtaking with its glaciated mountains rising steeply from the water.

*At Palmer Station, MCZ Director James J. McCarthy accepts on behalf of the MCZ, and in the company of other MCZ Friends, an American flag from Levin H. Campbell. The flag had been with Admiral Byrd in the Antarctic, and is a gift from Richard E. Byrd.*

Five of the peninsula's research stations were visited, and the contrasts were noteworthy. MCZ Friends were especially well received at the U.S. Palmer and Polish Arctwoski stations, where they had the opportunity to hear from the station personnel about their research programs.

Weather conditions and sea state during the northward crossing of the Drake Passage gave the travelers new respect for the heroic exploits of the early sailors who dared to navigate these waters. They returned to gentle waters in the Beagle Channel, and on their last day were treated to the spectacular scenery of glaciers stretching from high peaks to the sea.

### Other 1987 Programs

The August trip to **Borneo**, the first joint adventure with the Arnold Arboretum and accompanied by Arboretum Director Peter Ashton and Faculty of the MCZ member John Constable, is fully subscribed with a waiting list. There is still room and time to join the **Amazon** expedition aboard the *Society Explorer* accompanied by Professor Melanie L. J. Stiassny. Dates are October 11–22, 1987.

### 1988

The 1987 **Kenya** program proved so successful, resulting in three departures, that two more are

*(Continued on page 7)*

Photo by Mark W. Skinner

*Pronging impala.*

**Join the Friends of the MCZ and receive advance notice of all travel programs. See back page.**

# Patterns of a Life In Science: Ernst Mayr

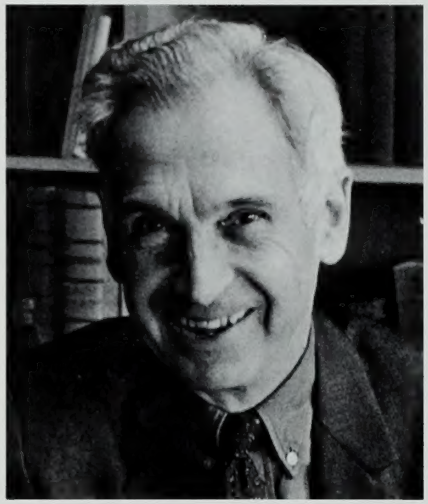
*by Hilary Hopkins*

On a snowy afternoon in January I spoke with Professor Ernst Mayr (who is Alexander Agassiz Professor of Zoology, Emeritus) about his earliest experiences in science. "Both of my parents were interested in nature, but in a very unspecified way. We would go out every weekend on a hike—this was in the town of Wurzburg in Northern Bavaria—and sometimes my father said, 'Oh, there is a spring flower I've never seen,' so we looked for that, and the next Sunday we would go in the woods somewhere because my mother wanted to collect mushrooms, and I wasn't even ten years old I am sure when I knew all the edible mushrooms. And then my father would take us to a quarry where we found ammonites. I also learned very early, because I didn't have any field glasses, the songs of birds and their call notes, and I really knew them all."

Professor Mayr continued, "My older brother knew more birds than I did and so I was quite ambitious to learn something more about them. We found out that there were people feeding birds by hand in one of the parks, titmice particularly, and so we collected all the seeds from the apples that we ate—it was wasteful to buy bird food," he laughed, "and I went to this place in the park, and I held up my hand with these seeds and the titmice came. It was a great triumph when one day a nuthatch came to our hands! And this must have been easily—oh, more than 70 years ago but I still remember that as something very impressive."

I asked about even earlier memories of science. He remembered: "It was the year 1911, when I was seven years old, at my grandparents' place at the shore of Lake Constance. They had a rock garden, south facing, and they always had lizards in this garden. One day when we were sort of poking around in the rock garden we found a clutch of eggs, white eggs, and we asked the grownups what they were, and they said, 'Oh, those are the eggs of lizards.' There it was! I really could see it!"

He recalled another vivid experience of really seeing it. "My brother had an aquarium, and we would go out to the streams and ponds with a net that we made out of cloth, and so dip in and see what came up. (He dipped into that stream of long ago.)



We were always able to catch sticklebacks. But then my brother brought home the larva of the Dytiscus beetle, which is highly predatory. And one morning we came in and one of the sticklebacks was lying on its back and the larva of this beetle was with its jaws in this thing and feeding on it. We were quite shocked about this predatory insect larva!" he added with relish.

After a beginning in medicine (a four-generation family tradition), he explained, "I was seduced into going for a degree in biology. My mother was a very sensible person. She said, 'Well, if that's what you want to do, go ahead.' So I went to Berlin and completed my biological studies, and managed to get an opening in the museum there." This was all before he was 21.

After that, in quick succession, came three expeditions. "Lord Rothschild needed somebody to collect birds for him in New Guinea, and I went out there and became a collector, and then directly from there to a nine-month expedition for the Berlin Museum, and while I was on that, I got by telegram an offer to join the Whitney South Sea Expedition of the American Museum of Natural History, and I spent nine months on a schooner in the Solomon Islands." The American Museum offered him a position, and at the age of 26 Mayr came to the United States to stay.

"In the olden days," Professor Mayr continued, "the artisans in the trade had to learn one job before they were given the master's certificate." He showed me a thick book. "This was my artisan's job. It's a complete list of the birds of New Guinea, all the details. I saw the specimen on which the description was based in almost every case. I went to all the museums which had specimens, and I studied all the literature that had ever been done on New Guinea birds. I did a lot of geographical work so I could make a gazetteer." He worked on this task during the first ten years of his professional career.

"I wasn't even aware, at that time," he added, "that I was capable of doing more intellectual things. But what I learned in doing this job helped me in my subsequent evolutionary work. I could always cite actual cases, because I had studied so many specimens."

The "more intellectual things," came in the intensifying focus on the great concepts of classification and systematics, through evolutionary biology, and then to *The Growth of Biological Thought*. "And in recent years more and more into philosophy. Right now I am really more in philosophy than anything else, and I am working on a major work which will really be a sort of philosophy of biology."

During our conversation I was interested in examples of Professor Mayr's extraordinary memory. He reported that his biology teacher might ask him where he had seen a particular bird, and he could report, "It was the 17th linden tree from the third corner." He also described an experience of eidetic memory during his oral exam for his Ph.D. The examiner questioned him on material Mayr had not studied for at least

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*Hilary Hopkins, A Friend of the MCZ since 1981, is a science enthusiast and educational consultant specializing in gifted children. This article is the third of a series she has prepared for the* MCZ Newsletter.

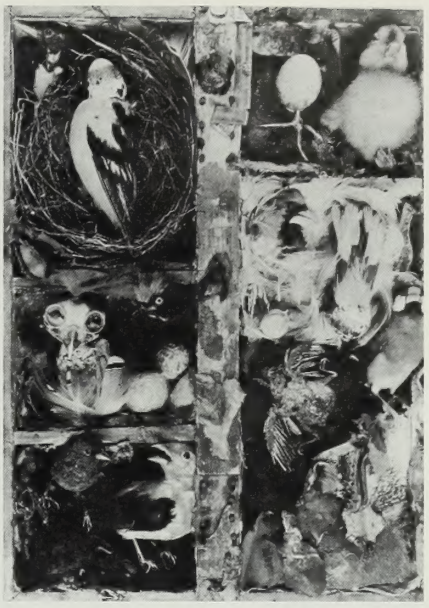
## Rosamond W. Purcell Awarded Bunting Fellowship

Photographer Rosamond Purcell has been awarded a Mary Ingraham Bunting Fellowship for 1987-1988 for a visual arts project entitled "Collectors and their Cabinets". Purcell has become a familiar figure in several MCZ departments over the last few years. The results of her sojourn here have been published in a dazzlingly successful book, which Purcell dedicated to the MCZ, entitled: *Illuminations: A Bestiary* (W. W. Norton), comprising her photographs and accompanying text by Stephen Jay Gould. The book, which recently won the American Institute for Graphic Arts award for book design, has spawned six magazine photo portfolios and exhibitions at Boston's Institute of Contemporary Art, Chicago's Field Museum, and the California Academy of Sciences in San Francisco. Currently in its second printing, the paperback edition of *Illuminations: A Bestiary* will be available in the fall. A book signing reception will be held at the MCZ on October 19.

Purcell's photographs have been the subject of two previous books, *A Matter of Time* (David R. Godine, 1975) and *Half Life* (Godine, 1980). She has had numerous magazine portfolios, group and solo exhibitions (including her current one at Torino Fotographia Biennale Internazionale) and her photographs are in the permanent collections of several major museums including the Boston Museum of Fine Arts, the New York Metropolitan Museum of Art, and London's Victoria and Albert Museum.

In describing her current project, to be supported by the Bunting Institute, Purcell envisions three phases: to characterize collections donated by individuals to museums; to continue and expand her study of primates; and to construct and photograph fictional "cabinets of curiosities" echoing the methods of ordering and displaying specimens by early collectors. She points out that these cabinets, donated by their collectors to fledgling institutions were the precursors of the modern natural history museum. Purcell's project involves juxtaposing varied elements, thus creating a fictional order of nature.

At receiving the news of her award from the Bunting Institute, Purcell gratefully acknowledged: "As a creative photographer, I invent my projects; there is no set curriculum to follow. When these independently-conceived and realized projects are recognized by an institution, it is a sweet triumph. I am being given the freedom to do my own work in the company of sympathetic colleagues. At the moment, I can think of no better prescription for peace of mind and with luck, I'll get some good work done."



Construction and photograph by Rosamond W. Purcell.

*A "cabinet" of curious birds.*

two years. His visual memory served him well. "I just opened up that page in my textbook, so to speak, and I gave him all the answers."

"I had a good visual memory. I never used to admit it, because when I was young we firmly believed that those people who had a good memory had a poor mind," he laughed.

The more we talked the more I had a sense of a person who has at his command a vast array of memories over which to play his intellect and with which to play as he searches for meaning and relationship. Perhaps his championing of the individuality of living things is because he is able to hold the images of so many of them in his mind's eye.

We spoke of *The Growth of Biological Thought*. "People say, 'Aren't you very sorry that you don't teach any more, classes and all that?' And I say, 'Well, that is really retailing information. I'm much more interested in wholesaling information.' Just imagine," he added with pleasure, "the audience I reach that way! It's fun to write! I'm glad that I lived long enough to write that book."

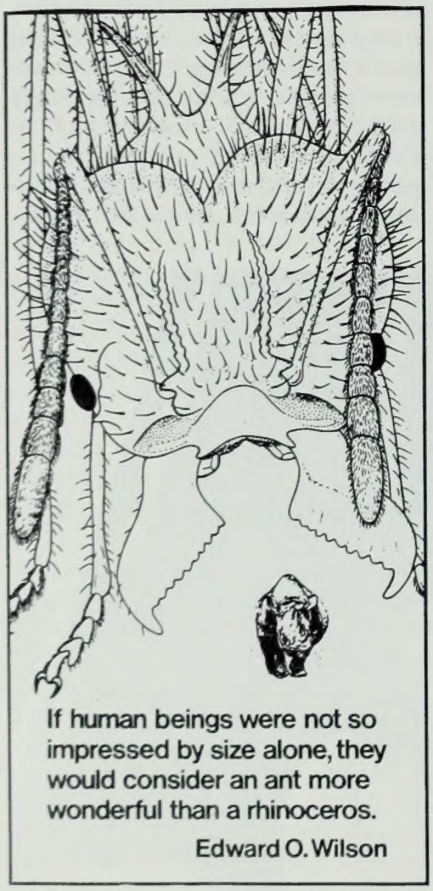
Photo by Stephen Jay Gould

*Rosamond W. Purcell.*

## E. O. Wilson Presented National Zoo Medal

The Smithsonian Institution's National Zoological Park honored Edward O. Wilson, MCZ Curator in Entomology and Frank B. Baird, Jr. Professor of Science, with its medal for outstanding work in zoological science and conservation at a ceremony on May 7. Wilson is the second recipient of this award, the first having been awarded posthumously to the late Prime Minister of India, Indira Ghandi.

In acknowledging the selection of Wilson by the Zoo's medal awards committee, National Zoo Director Michael H. Robinson cited Wilson's distinguished career in entomology, his monumental achievement in synthesizing the theories and defining the scientific boundaries that made sociobiology a new field of academic inquiry, and his recent efforts to bring public attention to the conservation of invertebrate animals.




*Sign over the entrance of the new National Zoo invertebrate animals exhibit.*

The presentation of the medal to Wilson coincided with the opening of the National Zoo's permanent exhibit featuring invertebrate animals. Wilson gave an address on biological diversity and the vital role of invertebrates in global ecology following the medal ceremony.

## James Carpenter Collects in Australia

Carrying on the MCZ Entomology Department's tradition of adding to the collection, Assistant Professor James Carpenter has recently returned from a very productive collecting trip to Australia. He was specifically looking for pollen wasps, Vespidae masarinae, to add to the Australian wasps collected by Howard Evans, but he also brought back a large variety of other insects.

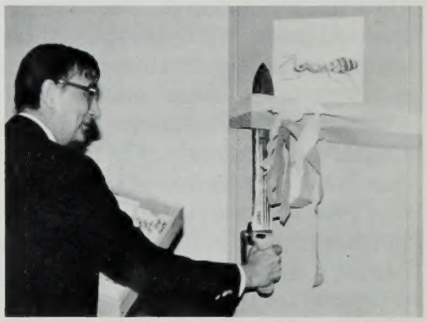
*James Carpenter at work in Queensland, Australia.*

"The enormous insect fauna in Australia is unique in the same way as the mammal fauna is unique. There is still a lot to be learned since much of it is unknown or only poorly known which is curious since the best insect text in the world is the one on Australian insects," according to Carpenter.

Carpenter is completing the second year of a three-year grant from the National Science Foundation. The first year took him collecting in South Africa and next year provides travel time to various European museums to study the wasp collections.

## Ant Room Opens

The newly-refurbished Ant Room of the MCZ's Entomology Department was officially opened on Friday, May 1. Funding for the project came from the National Science Foundation Systematic Biology Division and from the MCZ. The MCZ ant collection, which represents the collecting efforts of William Morton Wheeler, William Brown, E. O. Wilson and others, numbers nearly one million specimens with



*E. O. Wilson opens the new ant room wielding a machete to symbolize the strenuous field work that made this collection possible.*

over 4,000 species, making it by far the largest and most complete collection of ants in the world. It is visited regularly by ant specialists from around the world. The new room more than doubles the space available and will take the ant collections comfortably into the next century.

Dr. Mark Moffett, who has just completed his Ph.D. thesis on the systematics and behavior of "marauder" ants from Southeast Asia, the Asian equivalent of army ants, will reorganize and curate the collections for the next two years, assisted by several students.

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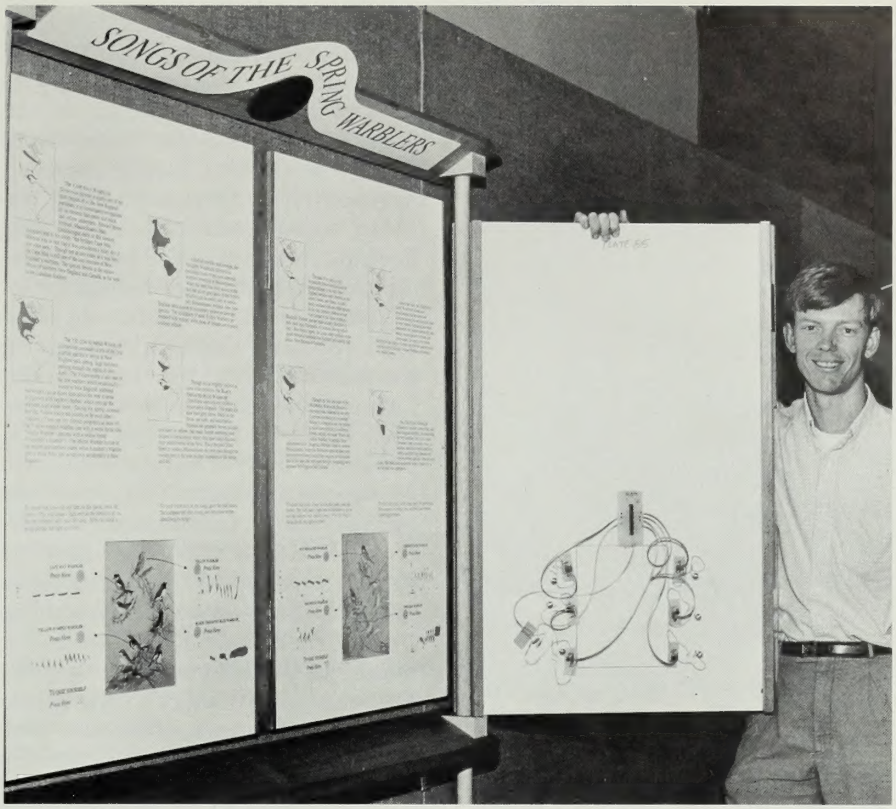
*Editor:* Gabrielle Dundon
*Photographer:* A. H. Coleman
*Contributing writer:* Jane Anderson

## Microchirp

The man behind the machine in the MCZ's most recent exhibition *Songs of the Spring Warblers* is Kurt Fristrup, a former MCZ graduate student. Fristrup has designed and implemented a novel computer system using digital acoustics to reproduce the warbler songs. This digital system provides better fidelity and durability than any system based on tapes or records. Digital acoustics provides the best way to synthesize the bird songs with clarity and accuracy, and it uses a minimum of moving parts enabling it to withstand very heavy use—in fact, the only moving parts in the exhibit are the push buttons and the speaker diaphragms.

The novel application of digital acoustics in the exhibition is based on a commonplace technology. The warbler songs are recreated by a microcomputer, which stores the songs just as music is stored on audio compact discs. Each song is represented as a list of about 70,000 numbers, which are obtained by measuring the amplitude of the bird song every 33 microseconds (0.000033 seconds apart). It is this high frequency of measurement that allows exact reproduction of the song. When a button is pressed, the computer retrieves the proper set of numbers and feeds them to a special microchip. The microchip converts these numbers into an electrical signal which is filtered, amplified, and fed into a speaker to produce the song. The 35 different songs would require two-and-a-half-million numbers to be stored; although Fristrup created shortcuts to reduce the storage requirements, there are still over a million numbers involved. In order to eliminate moving parts such as disk drive motors and drive head positioners, Fristrup keeps them on a "virtual disk" in an extended memory board.

*Songs of the Spring Warblers* is not the first project Fristrup has worked on combining animal acoustics with computer technology. He became interested in animal acoustics while studying Epomorphorine fruit bats in West Africa after the completion of a B.A. in Bioengineering from U.C., San Diego. He then enrolled in the biology graduate program at Harvard where he pursued his interests in electronics by working on radio-tracking birds and served as a consultant to members of the MCZ scientific community on microcomputer applications. After receiving his Ph.D., he was awarded a post-doctoral fellowship to develop an acoustic tracking system at Woods Hole Oceanographic Institution.




*Kurt Fristrup reveals the inner workings of* Songs of the Spring Warblers.

During this fellowship Fristrup worked on an acoustic tracking system based on the same principle as sonar. Remote acoustic sensing has tremendous potential for ecological and behavioral studies. For example, many vertebrate species can be heard at much greater range than they can be seen, individual animals can often be identified on the basis of voice, and acoustic signals can help define the physical mechanisms responsible for sound generation.

The specific sytem Fristrup developed can detect and localize animal sounds at far greater ranges than they can be heard by the human ear. A microphone array can be set up in less than an hour to monitor tens to hundreds of individuals simultaneously within a three to eighty hectare area. As well as yielding valuable data, this arrangement also leaves the field investigator free to pursue other observations for up to an eight-hour period.

Kurt Fristrup's use of computer technology in *Songs of the Spring Warblers* and his acoustic tracking system, demonstrates that computers, in addition to being valuable tools in modern research laboratories, can also be useful in even the most traditional aspect of the study of nature—field observation.

## Public Programs Advisory Board Expanded

Several new members attended the meeting of the Advisory Board for Public Programs on January 7. The complete membership now includes: Emily Hubbs Scott, chair, Dr. John D. Constable, Mrs. Gordon B. Greer, Dr. Lynda Lytle Holmstrom, Rosanne Kumins, Barbara S. Leaver, Harriet Provine, Mr. and Mrs. George Putnam, Mrs. Arthur Schleifer, Dr. Alfred W. Scott, Mr. and Mrs. Donald Seamans, Mr. and Mrs. Frederic B. Viaux, and Mrs. Jeptha H. Wade.

## Henry D. Russell
## 1908 – 1987

Dr. Henry Drummond Russell, Associate in the Department of Mollusks, died on January 24, 1987, after a long illness; and his wife, Elizabeth Meade Russell, died suddenly one month later on February 24, 1987.

After graduating from Harvard College in 1928, Russell began his long association with the MCZ's Mollusk Department by volunteering to assist Dr. William J. Clench, the then curator; this experience also facilitated his study of the prosobranch gastropod family Neritidae in the western Atlantic, the topic which constituted his doctoral dissertation. He received his Master's and Doctoral degrees from Boston University in 1933 and 1940.

Appointed Honorary Assistant Curator of Mollusks in the MCZ in 1940, Russell subsequently joined the Division of Marine Fishes in the Department of Conservation as Assistant Biologist where he was involved in a state aid project for the restocking and cultivating of the clam flats of coastal Massachusetts. After resigning this position in 1942, he spent a year as Assistant to Dr. Thomas Barbour, the President of the New England Museum of Natural History, now the Museum of Science. He pursued a number of research projects during the war including an Army study of insect pests in supplies and a Navy study on submarine illumination.

In 1948, Russell commenced a long association with Boston University, first as Instructor in General Biology, lecturing on evolution, genetics, and other subjects, and subsequently as head of the General Biological Laboratories and Assistant Professor of Biology until 1961 when he returned to research as an Associate of the newly-established Systematics and Ecology Program of the Marine Biological Laboratories at Woods Hole.

Relatively late in his career, Russell's research work culminated in the publication of his work on the group of animals he enjoyed most with his book *Index Nudibranchia*, published in 1972 by the Delaware Museum of Natural History. This indispensable contribution consists of a delineation of all the scientific papers published on this unique group of shell-less snails from the time of Belon and Rondelet in the middle of the 16th century to 1965. A special supplement to the literature on nudibranchs between 1966 and 1975 was published in 1986 by the MCZ's Mollusk Department, of which he had been an Associate since 1972.

## Norman Russell
## 1918–1987

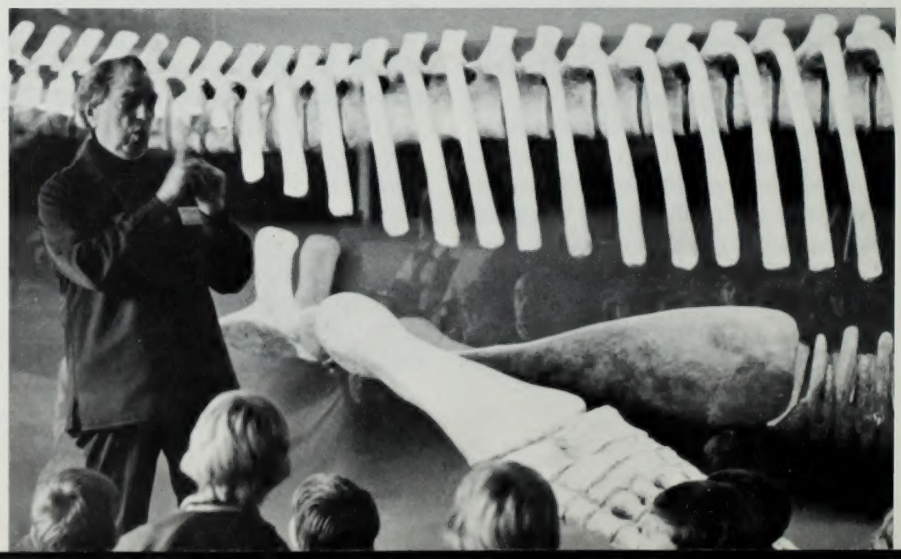
When Norman Russell died on February 10 he left many saddened friends in the Museum Guide program and a large hole in the schedule for school programs on evolution and animal adaptations. For the last eight years, Russell, as an almost-daily regular in the Guide Office and the museum's exhibit halls, was an integral part of the 11-year-old volunteer program.

Russell arrived at the MCZ after an eventful career as a writer, amateur anthropologist, and traveler. After graduating from Columbia University as an English major he served on the editorial staffs of several major magazines including Time, Fortune, U.S. News, and Newsweek. When desk jobs became confining, he sought adventure to provide material for his personal writings which took the form of several novels. At one point he combined his interest in speaking Spanish with a passion for train travel and decided to take the longest train ride he could which, after several changes, landed him in Cozumel, Mexico where he became totally engrossed in both the present culture and the ruins of ancient ones and remained for three years.

His years at the MCZ provided him with the opportunity to combine his talents at communication, both verbal and written, and his deep interest in evolution and human origins. Both his daughters majored in Anthropology at Columbia University, products of their father's earlier guided tours in the exhibition halls of the American Museum of Natural History in New York while they were growing up. His programs at the MCZ will long be remembered by the many school children who were lucky enough to be introduced to the concepts of evolution by this remarkably able teacher.

Russell's fondest dream was that the MCZ acquire a cast of early hominid footprints from Laetoli to augment the evolution programs. These have now been ordered from the Kenya Museum, partially supported by contributions from his fellow Museum Guides, and will be dedicated to his memory.

*Museum Guide Norman Russell conducting an evolution program at his customary spot in front of the Kronosaurus in the Romer Hall of Vertebrate Paleontology.*



# News from the MCZ Library

## Maria Woodman Retires

Maria Woodman, Technical Services Librarian and Cataloger in the MCZ Library since 1978, retired on February 1. At a farewell reception

on January 29, colleagues from many of Harvard's libraries came to honor their peripatetic co-worker. Woodman's varied career at Harvard began in 1958 when she was appointed as Assistant Librarian and Cataloger in the Gordon McKay Library. She served in that position until 1965 when she was appointed Acting Librarian of Gordon McKay. In 1968 she moved to Widener Library as part-time Cataloger. From 1970 to 1972 she participated in a special project at the Fine Arts Library as Editor for the Catalog and also served as Cataloger in the Geological Sciences Library from 1971 to 1974. In 1974 she became Cataloger in the Manpower and Industrial Relations Collection of Littauer Library, a position she held until 1978 when she joined the MCZ Library. Woodman served on the Communications and Orientation Committee from 1982 to 1985 and was president of the Harvard Library Club for 1982-83.

## Ross Ljungquist Joins Staff

The new Technical Services Librarian, Ross Ljungquist, transferred from the Countway Library of Medicine on March 30. He had been a Serials Librarian there since 1982. Ljungquist came to Countway in 1975 as a Cataloging Assistant. He received an M.S.L.S. from Simmons College in 1978 and was subsequently appointed Cataloger, a position he held until his appointment as Serials Librarian.

## Vertebrate Paleontology Open House

On April 30, a large group of Friends of the MCZ, joined by MCZ staff members, visited three areas of the MCZ's Vertebrate Paleontology Department. In the fossil preparation laboratory, Preparator William Amaral and graduate student Neil Shubin described the current fossil project in Nova Scotia and demonstrated fossil preparation techniques. Curatorial Associate Charles Schaff introduced visitors to fossil collecting techniques and showed slides from one of the MCZ's collecting sites. Professor Farish A. Jenkins, Jr., Professor G.E. Goslow (Northern Arizona University) and Dr. Kenneth P. Dial showed x-ray films of flying birds—the first ever produced—and the starlings themselves, flying in a specially-constructed wind tunnel. The Public Programs staff were ably assisted by MCZ Friends Barbara Leaver and Peter Alden in hosting this well-attended event.

## Staff News

Professor **Melanie L. J. Stiassny** has accepted a curatorial position in the Ichthyology Department at the American Museum of Natural History. Since arriving at the MCZ in 1984 as Assistant Curator in Ichthyology, Stiassny has been an active figure, popular with her students, pivotal in the Biosystematics Discussion group, and successful in obtaining support for her research on the evolutionary systematics of cichlid fishes. She has also accompanied the Friends of the MCZ to Zambia, Zimbabwe and Botswana and will be the scientific guide for next October's Amazon trip. Her lively presence will be missed around the MCZ.

### Travel

*(Continued from page 1)*

planned for next year. Scientific guides for the safaris will be Professor Farish A. Jenkins, Jr., and Dr. Kenneth P. Dial (February 27–March 12) and Professors Rodney A. Honeycutt and Steven Austad (August 5–19).

Two comfortable tenting safaris to **Tanzania** are planned for January and August. Campsites will be set up for participants at Lake Manyara, Serengeti National Park, and Ngorongoro Crater. Leaders will be Drs. Rob Dorit and Gillian Kendall (January 1–16) and graduate student Mark Skinner and MCZ Public Programs Director Gabrielle Dundon (August 1–16).

Photo by Dotte Larsen

*Cheetah on the Maasai Mara.*

The **Fringe of Ancient Polynesia** cruise, jointly sponsored by the MCZ, the Harvard Alumni Association and the California Academy of Sciences will sail aboard the *Society Explorer* March 4–23, 1988. Highlights of the itinerary include two days on Easter Island, and visits to the islands of Ducie, Henderson, Pitcairn, Temoe, Mangareva, Rapa, Raivavae, and Tahiti. Lecturers will be Professor Kenneth P. Sebens of Northeastern University and MCZ Associate, a specialist in corals and coral reef ecology, Dr. Prudence L. Steiner, Lecturer and Coordinator for the Expository Writing Program in the Harvard University Extension, an expert on Melville and other 19th century writers who explored the South Seas, and Dr. John E. McCosker, Director of the California Academy's Steinhart Aquarium, an expert on sharks and marine mammals. Public Programs Director Gabrielle Dundon will serve as escort for the group.

## Future Plans

At the May meeting of the Friends of the MCZ Travel Committee, tentative plans were formulated for trips to the **Galapagos Islands, Papua New Guinea, Costa Rica, Northern India,** and **Alaska.**

## Successful Symposium

The first Public Programs' Symposium provided several thought-provoking viewpoints on the subject of the day: *Endangered Habitats Along the Warblers' Migratory Route*. MCZ Curator in Ornithology Dr. Raymond A. Paynter, Jr. served as moderator for the day and members of the MCZ's scientific community served as table discussion leaders during the lunch which was held in the MCZ's Exhibits area. Those taking part included: Marc Allard, Ed Armstrong, Dr. Kurt Fristrup, Dr. Marty Fujita, Dr. David Mindell, Maria Rutzmoser, Mark Skinner, Dr. Ruth Turner, and Charlie Vogt. Peter Alden and Frank Gardner, active Friends of the MCZ, also served as discussion leaders.

MCZ Friend Jamie W. German, one of the attendees and a teacher of chemistry and evolution at the Moses Brown School in Providence, RI, sent the following letter and report to the Public Programs Office.

I want to thank you . . . for the chance to hear some excellent speakers and to learn new information, as well as to hear familiar information presented in new ways . . . I feel I have reaped one of the benefits of being a member of the MCZ. I enclose a copy of the note I have written to the headmaster [of Moses Brown School] and to my science colleagues.

On Saturday, 11 April, I attended a symposium at Harvard's Museum of Comparative Zoology. Entitled "Endangered Habitats Along the Warbler's Migratory Route," it allowed for quite a diversity of lectures.

Speaking first was Edward O. Wilson (of Harvard and of Sociobiology fame) on general issues of extinction and diversity; he made the point repeatedly that we simply do not know the extent of biological diversity in the world and yet we are losing it at extraordinarily high extinction rates. Most of the diversity in species occurs in the tropical rain forest, and it is this ecosystem which is being rapidly destroyed. Because the turnover in nutrients is so rapid in the rain forest, essentially nothing resides in the soil. When the forest is cut, desert results.

He also made the point that we need to study how small an area of any given ecosystem can be kept a preserve and still work as a functioning system. In addition, he feels there needs to be a tremendous new effort in systematic biology (we must combat the attitude that all the action is in molecular biology). Our concerns must be international, and that includes the training of third world biologists.

Following Wilson was Peter Ashton, also of Harvard, and a specialist on the tropical rain forests of Asia. He provided more information and examples on the diversity of species in the rain forest and on their relationships with one another. He pointed out that we need to study the effect on the rain forest of fragmentation—what happens to the trees and their myriad residents when we go from continuous forest to patches. The biology and ecology of temperate forests do not transfer to rain forests; for a number of reasons (including the fact that the seeds won't keep) a rain forest can't be regrown like a pine forest. And he feels we must shift our emphasis from studying vertebrates; vertebrate species are only a tiny fraction of species existing.

After lunch, Charles Walcott, who directs the Laboratory of Ornithology at Cornell, talked about research on bird migration—specifically, on how birds orient and navigate. We heard a fair amount of information (and some pretty entertaining stories) about experiments with homing pigeons. The upshot seems to be that birds have several cue systems (some stronger than others in different species)—stars, the magnetic field, direction of sunset, polarized light, smell, and wind direction—that allow them to orient to a compass direction. There is still really no clue as to how birds navigate, that is, locate the same spot to return to each year.

Finally, Stanley Temple (University of Wisconsin) talked on the factors controlling the populations of long-distance migrating birds. If a species is in population trouble, it is necessary to find out what is going on at both ends of the yearly trip. Again, international concerns.

The day was interesting and informative . . . Food was good, too!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